output an optical signal; and

a shutting down device shutting down said optical signal when receiving at least one of a power alarm relating to on/off of power supply and a wavelength alarm relating to the wavelength of said light beam.

42. (AS NEW HEREIN) An optical communication system according to claim 41, further comprising at least one optical amplifier arranged along said optical fiber transmission line.

REMARKS

Reconsideration and allowance of the above-referenced application are respectfully requested.

I. STATUS OF THE CLAIMS

None of the claims are amended.

New claims 22-42 are added.

In view of the above, it is respectfully submitted that claims 1-42 are currently pending and under consideration.

II. REJECTION OF CLAIMS 1-21 UNDER 35 U.S.C. § 103(A) AS UNPATENTABLE OVER MIYACHI ET AL. (USP# 5,920,414) IN VIEW OF HEILING ET AL. (USP# 5,136,410)

The present invention as recited, for example, in claim 1 relates to an optical sender comprising "means for shutting down said optical signal when receiving at least one of a power alarm relating to on/off of power and a wavelength alarm relating to the wavelength of said light beam."

Miyachi discloses a wavelength division multiplexing transmission optical apparatus

provided with a control section that, in addition to a first control function of controlling the wavelength of each of the semiconductor lasers to a wavelength minimizing the loss in the optical wavelength multiplexer, has a second control means of sensing ambient temperature and controlling the optical wavelength multiplexer so that the temperature characteristic of the optical wavelength multiplexer may be compensated on the basis of fluctuations in the ambient temperature. (See column 5, lines 42-51).

The Examiner asserts that Miyachi discloses controlling the optical source (LD) in response to an alarm.

It is respectfully submitted to the Examiner that Miyachi does not disclose controlling an optical source. Instead, however, Miyachi discloses controlling an optical wavelength multiplexer as described in column 5, lines 42-51. Thus, and as also recognized by the Examiner, Miyachi does not disclose the claimed means for shutting down said optical signal when receiving at least one of a power alarm relating to on/off of power and a wavelength alarm relating to the wavelength of said light beam as claimed in claim 1.

Heiling discloses an optical fiber link control safety system that easily and cost effectively detects link failures over the distances spanned by a particular link, reduces (or shuts off) the laser's radiant energy output, when a link failure is detected. (See column 4, lines 19-25).

The Examiner asserts that shutting down an optical source is well known as evidenced by Heiling, and thus, would be obvious to use the control of Miyachi to shut down an optical source.

As mentioned above, however, Miyachi does not disclose controlling an optical source.

Therefore, neither Miyachi nor Heiling, alone or in combination, suggest or disclose the features as claimed, for example, in claim 1 of the claimed invention.

Independent claims 19 and 20 also recite the claimed means for shutting down said optical signal when receiving at least one of a power alarm relating to on/off of power and a wavelength alarm relating to the wavelength of said light beam, as claimed for example, in claim 1. Hence, neither Miyachi nor Heiling, alone or in combination, suggest or disclose the features as claimed, for example, in claims 1, 19, and 20.

In view of the above, it is respectfully submitted that the rejection is overcome.

III. CONCLUSION

In view of the foregoing amendments and remarks, it is respectfully submitted that each of the claims patentably distinguishes over the prior art, and therefore defines allowable subject matter. A prompt and favorable reconsideration of the rejection along with an indication of allowability of all pending claims are therefore respectfully requested.

Should there be any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

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CERTIFICATE UNDER 37 CFR 1.8(a)

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner of Patents and Trademarks, Washington, D.C. 20231

on June 14, 2001

STASS & HALSEY

By:

Date: June 14, 2001

VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE CLAIMS:

Please AMEND the following claims:

1. (AS UNAMENDED) An optical sender comprising:

a light source for outputting a light beam;

an optical modulator for modulating said light beam in accordance with a main signal to output an optical signal; and

means for shutting down said optical signal when receiving at least one of a power alarm relating to on/off of power supply and a wavelength alarm relating to the wavelength of said light beam.

2. (AS UNAMENDED) An optical sender according to claim 1, further comprising:

a circuit for supplying a power to said light source; and

a power supervisory circuit for monitoring on/off of supply of the power to said light source and outputting said power alarm during a given time period from a time the supply of the power to said light source becomes on or off.

3. (AS UNAMENDED) An optical sender according to claim 2, wherein said power supplying circuit comprises a constant current source.

4. (AS UNAMENDED) An optical sender according to claim 1, further comprising:

a wavelength monitor for detecting the wavelength of said light beam; and

a circuit for outputting said wavelength alarm when the wavelength detected by said wavelength monitor is deviated from a predetermined range.

5. (AS UNAMENDED) An optical sender according to claim 4, further comprising means for controlling said light source so that the wavelength detected by said wavelength monitor is maintained constant.

6. (AS UNAMENDED) An optical sender according to claim 5, wherein:

said light source comprises a laser diode; and

said controlling means comprises means for controlling the temperature of said laser diode.

7. (AS UNAMENDED) An optical sender according to claim 4, wherein said wavelength monitor is provided between said light source and said optical modulator.

8. (AS UNAMENDED) An optical sender according, to claim 4, wherein said optical modulator is provided between said light source and said wavelength monitor.

9. (AS UNAMENDED) An optical sender according to claim 4, wherein:

said light source comprises a laser diode for outputting a forward beam and a backward beam;

said forward beam being supplied to said optical modulator, said backward beam being supplied to said wavelength monitor.

10. (AS UNAMENDED) An optical sender according to claim 1, wherein said shutting down means comprises:

an optical element for receiving said optical signal output from said optical modulator; and

means for controlling said optical element so that the transmittance of said optical element is reduced when receiving at least one of said power alarm and said wavelength alarm.

11. (AS UNAMENDED) An optical sender according to claim 10, wherein said optical element is a Mach-Zehnder type lithium niobate modulator.

12. (AS UNAMENDED) An optical sender according to claim 10, wherein said optical element is a Mach-Zehnder type semiconductor modulator.

13. (AS UNAMENDED) An optical sender according to claim 10, wherein said optical element is an electroabsorption type modulator.

14. (AS UNAMENDED) An optical sender according to claim 10, wherein said optical element is a semiconductor optical amplifier.

15. (AS UNAMENDED) An optical sender according to claim 1, wherein said shutting down means comprises means for switching the operating point of said optical modulator and shutting down input of said main signal into said optical modulator when

receiving at least one of said power alarm and said wavelength alarm.

16. (AS UNAMENDED) An optical sender according to claim 15, wherein said optical modulator is a Mach-Zehnder type lithium niobate modulator.

17. (AS UNAMENDED) An optical sender according to claim 15, wherein said optical modulator is a Mach-Zehnder type semiconductor modulator.

18. (AS UNAMENDED) An optical sender according to claim 15, wherein said optical modulator is an electroabsorption type modulator.

19. (AS UNAMENDED) A terminal device for wavelength division multiplexing, comprising:

a plurality of optical senders for outputting optical signals having different wavelengths; and

an optical multiplexer for receiving said optical signals to output wavelength division multiplexed signal light:

wherein each of said optical senders comprises:

a light source for outputting a light beam;

an optical modulator for modulating said light beam in accordance with a main signal to output an optical signal; and

means for shutting down said optical signal when receiving at least one of a power alarm relating to on/off of power supply and a wavelength alarm relating to the wavelength of

said light beam.

20. (AS UNAMENDED) An optical communication system for wavelength division multiplexing, comprising:

first and second terminal devices; and

an optical fiber transmission line for connecting said first and second terminal devices;

wherein at least one of said first and second terminal devices comprises:

a plurality of optical senders for outputting optical signals having different wavelengths; and

an optical multiplexer for receiving said optical signals to output wavelength division multiplexed signal light;

wherein each of said optical senders comprises:

a light source for outputting a light beam;

an optical modulator for modulating said light beam in accordance with a main signal to output an optical signal; and

means for shutting down said optical signal when receiving at least one of a power alarm relating to on/off of power supply and a wavelength alarm relating to the wavelength of said light beam.

21. (AS UNAMENDED) An optical communication system according to claim 20, further comprising at least one optical amplifier arranged along said optical fiber transmission line.

Please ADD the following NEW claims:

22. (NEW) An optical sender comprising:

a light source outputting a light beam;

an optical modulator modulating said light beam in accordance with a main signal to output an optical signal; and

a shutting down device shutting down said optical signal when receiving at least one of a power alarm relating to on/off of power supply and a wavelength alarm relating to the wavelength of said light beam.

23. (NEW) An optical sender according to claim 22, further comprising:

a circuit supplying a power to said light source; and

a power supervisory circuit monitoring on/off of supply of the power to said light source and outputting said power alarm during a given time period from a time the supply of the power to said light source becomes on or off.

24. (NEW) An optical sender according to claim 23, wherein said power supplying circuit comprises a constant current source.

25. (NEW) An optical sender according to claim 22, further comprising:

a wavelength monitor detecting the wavelength of said light beam; and

a circuit outputting said wavelength alarm when the wavelength detected by said wavelength monitor is deviated from a predetermined range.

26. (NEW) An optical sender according to claim 25, further comprising a first controlling device controlling said light source so that the wavelength detected by said wavelength monitor is maintained constant.

27. (NEW) An optical sender according to claim 26, wherein:

said light source comprises a laser diode; and

said first controlling device comprising a temperature controller controlling the temperature of said laser diode.

28. (NEW) An optical sender according to claim 25, wherein said wavelength monitor is provided between said light source and said optical modulator.

29. (NEW) An optical sender according, to claim 25, wherein said optical modulator is provided between said light source and said wavelength monitor.

30. (NEW) An optical sender according to claim 25, wherein:

said light source comprises a laser diode outputting a forward beam and a backward beam;

said forward beam being supplied to said optical modulator, said backward beam being supplied to said wavelength monitor.

31. (NEW) An optical sender according to claim 22, wherein said shutting down

device comprises:

an optical element receiving said optical signal output from said optical modulator; and

a second controlling device controlling said optical element so that the transmittance of said optical element is reduced when receiving at least one of said power alarm and said wavelength alarm.

32. (NEW) An optical sender according to claim 31, wherein said optical element is a Mach-Zehnder type lithium niobate modulator.

33. (NEW) An optical sender according to claim 31, wherein said optical element is a Mach-Zehnder type semiconductor modulator.

34. (NEW) An optical sender according to claim 31, wherein said optical element is an electroabsorption type modulator.

35. (NEW) An optical sender according to claim 31, wherein said optical element is a semiconductor optical amplifier.

36. (NEW) An optical sender according to claim 22, wherein said shutting down device comprises a switching device switching the operating point of said optical modulator and shutting down input of said main signal into said optical modulator when receiving at least one of said power alarm and said wavelength alarm.

37. (NEW) An optical sender according to claim 36, wherein said optical modulator is a Mach-Zehnder type lithium niobate modulator.

38. (NEW) An optical sender according to claim 36, wherein said optical modulator is a Mach-Zehnder type semiconductor modulator.

39. (NEW) An optical sender according to claim 36, wherein said optical modulator is an electroabsorption type modulator.

40. (NEW) A terminal device for wavelength division multiplexing, comprising:

a plurality of optical senders outputting optical signals having different wavelengths; and

an optical multiplexer receiving said optical signals to output wavelength division multiplexed signal light:

wherein each of said optical senders comprises:

a light source outputting a light beam;

an optical modulator modulating said light beam in accordance with a main signal to output an optical signal; and

a shutting down device shutting down said optical signal when receiving at least one of a power alarm relating to on/off of power supply and a wavelength alarm relating to the wavelength of said light beam.

41. (NEW) An optical communication system for wavelength division multiplexing, comprising:

first and second terminal devices; and

an optical fiber transmission line connecting said first and second terminal devices;

wherein at least one of said first and second terminal devices comprises:

a plurality of optical senders outputting optical signals having different wavelengths; and

an optical multiplexer receiving said optical signals to output wavelength division multiplexed signal light;

wherein each of said optical senders comprises:

a light source outputting a light beam;

an optical modulator modulating said light beam in accordance with a main signal to output an optical signal; and

a shutting down device shutting down said optical signal when receiving at least one of a power alarm relating to on/off of power supply and a wavelength alarm relating to the wavelength of said light beam.

42. (NEW) An optical communication system according to claim 41, further comprising at least one optical amplifier arranged along said optical fiber transmission line.